

## Robust Flash 3D-FPA Sensor, Phase I

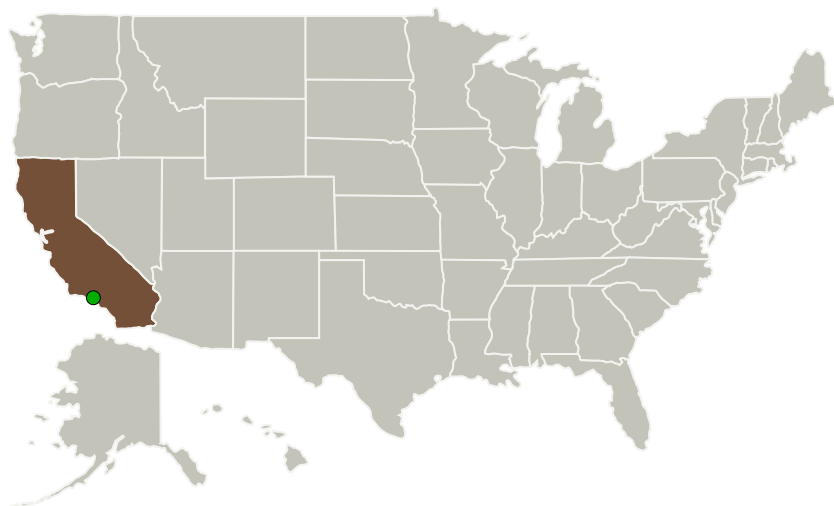
Completed Technology Project (2010 - 2010)



## Project Introduction

Advanced Scientific Concepts, Inc. (ASC) is a small business, which has developed a compact, eye-safe 3D Flash LIDAR™ Camera (FLC) well suited for real-time spacecraft trajectory, speed, orientation measurements relative to the planet's surfaces and evaluating potential hazards during the critical landing sequence. Data collected using ASC's FLC at JPL's Mars Yard and in NASA ALHAT flight tests demonstrated that ASC Flash LIDAR system can meet the requirements for Entry Descent and Landing (EDL). Aboard the Space Shuttle Endeavour (STS-127), SpaceX and ASC demonstrated the DragonEye Autonomous Rendezvous and Docking (AR&D) Flash LIDAR solution in low earth orbit, the first Flash LIDAR in space. ASC is developing a camera for iRobot Corporation for use in autonomous robotic navigation which is directly applicable to EDL mission requirements. The purpose of the Phase I SBIR effort is to increase the 3D-Focal Plane Array's (3D-FPA) long term reliability by creating a 3D-FPA Dewar sensor assembly. Reliability will be improved significantly by reduced outgassing, corrosion prevention, radiation tolerance and reduced aging sensitivity. ASC's 128x128 3D array FLC has the equivalent of 16,000 range finders on a single FPA which allows the sensor to act as a 3D video camera with enhanced functionality and value add well beyond range finding.

## Primary U.S. Work Locations and Key Partners

Robust Flash 3D-FPA Sensor,  
Phase I

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Organizations Performing Work	Role	Type	Location
Advanced Scientific Concepts, Inc.	Lead Organization	Industry	Goleta, California
● Jet Propulsion Laboratory(JPL)	Supporting Organization	NASA Center	Pasadena, California

## Primary U.S. Work Locations

California

## Project Transitions

**January 2010:** Project Start**July 2010:** Closed out**Closeout Summary:** Robust Flash 3D-FPA Sensor, Phase I Project Image**Closeout Documentation:**

- Final Summary Chart Image(<https://techport.nasa.gov/file/139414>)

## Organizational Responsibility

**Responsible Mission Directorate:**

Space Technology Mission Directorate (STMD)

**Lead Organization:**

Advanced Scientific Concepts, Inc.

**Responsible Program:**

Small Business Innovation Research/Small Business Tech Transfer

## Project Management

**Program Director:**

Jason L Kessler

**Program Manager:**

Carlos Torrez

**Principal Investigator:**

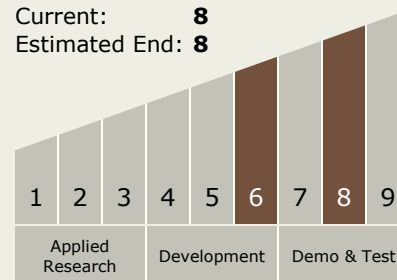
Brad Short

## Technology Maturity (TRL)

Start: 6

Current: 8

Estimated End: 8



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### Technology Areas

#### Primary:

- TX09 Entry, Descent, and Landing
  - └ TX09.4 Vehicle Systems
    - └ TX09.4.7 Guidance, Navigation and Control (GN&C) for EDL

### Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System